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SEMICONDUCTOR DEVICE

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[There are no amendments to this patent.]

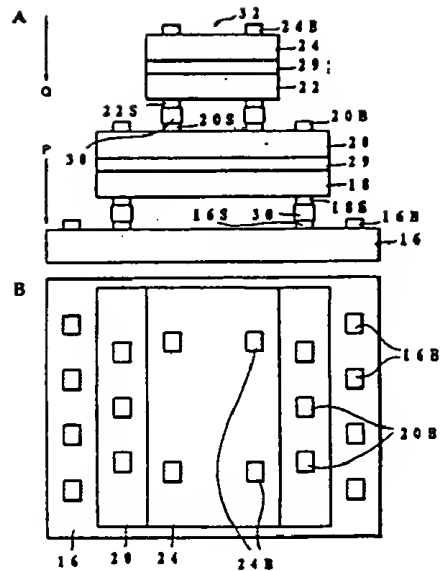
Abstract (amended)

Objective

To offer connected semiconductor chips which have a structure in which the many semiconductor chips can be mounted within one package by using a common wire bonding technique.

Constitution

A semiconductor chip (18), which has the element-forming face facing the direction of Q, is laminated on the element-forming face of a semiconductor chip (16), which has the element-forming face facing the direction of P, and they are electrically connected by bumps (30) through connecting pads (16S) and (18S). During this, the bonding pads (16B) which are provided at the element-forming face of the chip (16) are in an exposed state. A semiconductor chip (20), which has the element-forming face facing in the direction of P, is laminated and bonded at the back face of the chip (18). Similarly, the chip (20) and the chip (22) are electrically connected to each other at the element-forming faces, and the chip (22) and the chip (24) are bonded together at their back faces. Also, during this, the bonding pads (20B), which are provided at the element-forming face of the chip (20), are in an exposed state.



Key: 16,20,24 Semiconductor chips facing the direction of P
 18,22 Semiconductor chips facing the direction of Q
 16B,20B,24B Bonding pads
 16S,18S,20S,22S Connecting pads

Claim

A semiconductor device, which is a semiconductor device formed by laminating 2 or more semiconductor chips that have an element-forming face and a back face,

characterized by each of the semiconductor chips successively having the element-forming face facing in the

primary direction and the secondary direction, so that it is laminated while opposing the element-forming faces and the back faces to each other,

bonding pads and connection pads being provided at the element-forming face of the semiconductor chips which face the primary direction, and connection pads being provided at the element-forming face of the semiconductor chips which face the secondary direction,

the aforementioned semiconductor chips with their element-forming faces facing the secondary direction being laminated in a manner so that the bonding pads of the aforementioned semiconductor chips with their element-forming faces facing the primary direction can be exposed,

and by the aforementioned semiconductor chips with their element-forming faces facing the primary direction and the aforementioned semiconductor chips with their element-forming faces facing the secondary direction being electrically connected through their respective aforementioned connecting pads.

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